

What is claimed:

1. A method of fabricating a piezoelectric/electrostrictive device comprising a driving portion to be driven by a displacement of a piezoelectric/electrostrictive element, a movable portion to be operated by driving said driving portion, and a fixing portion for holding said driving portion and said movable portion,

said piezoelectric/electrostrictive device being structured in that said driving portion comprises a pair of thin plate portions facing each other, and a film-like piezoelectric/electrostrictive element including at least a pair of electrode films and a piezoelectric/electrostrictive film formed on at least a part of the outer surface of at least one of said thin plate portions, said fixing portion is coupled with said movable portion via said driving portion, and a hole is defined by an inner wall of said driving portion, an inner wall of said movable portion, and an inner wall of said fixing portion, and at least one side of a piezoelectric operating portion of said piezoelectric/electrostrictive element in a direction in which said thin plate portion connects said fixing portion with said movable portion is structured to exist on the fixing portion or the movable portion.

said method of fabricating comprising the steps of:

preparing a ceramic green laminate comprising at least one ceramic green sheet constituting a thin plate and at least one ceramic green sheet having at least one hole formed thereon;

sintering said ceramic green laminate to produce a ceramic laminate;

forming a piezoelectric/electrostrictive element by a film formation method on the outer surface of said thin plate portion of the ceramic laminate obtained; and

cutting the ceramic laminate with said piezoelectric/electrostrictive element formed thereon.

2. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing a ceramic green laminate includes a step of preparing ceramic green sheets to become a pair of thin plates in such a manner that they are laminated facing each other.
3. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing a ceramic green laminate includes a step of preparing ceramic green sheets to become a pair of thin plates in such a manner that they are laminated on the outermost layer facing each other, respectively.
4. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing a ceramic green laminate includes a step of preparing a laminate by laminating a ceramic green sheet to become a thin plate within at least one ceramic green sheet having at least one hole formed thereon.
5. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing a ceramic green laminate includes a step of preparing a laminate by laminating a ceramic green sheet to become a thin plate with a number of said ceramic green sheets each having at least one hole formed thereon.

6. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing a ceramic green laminate includes steps of preparing two laminates A each comprising a laminate by laminating a ceramic green sheet to become a thin plate with at least one ceramic green sheet having at least one hole formed thereon, and preparing one ceramic green sheet having at least one hole formed thereon or a laminate B by laminating with a plurality of ceramic green sheets each having at least one hole formed thereon, and laminating said two laminates A by intervening said one ceramic green sheet having at least one hole formed thereon or said laminate B being laminated with a plurality of ceramic green sheets each having at least one hole formed thereon, in such a manner that the respective thin plate portions of said two laminates A are placed at an outermost layer, respectively.

7. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, characterized in that a protrusion is provided at a portion of the outside layer surface of at least one side of the outermost layer of said ceramic green laminate except said thin plate portions.

8. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said step of preparing said ceramic green laminate includes a step of preparing a laminate prepared by laminating at least one ceramic green sheet having at least one hole formed thereon with ceramic green sheets to become a pair of thin plates in such a manner that said green sheets are laminated, as an outermost layer, facing each other on the outermost layer of said ceramic green sheets having at least one hole.

9. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said method includes a step of laminating on a surface constituting the outermost layer of said ceramic green laminate having at least one hole, when laminating at least a plurality of ceramic green sheets having at least a hole formed thereon, a ceramic green sheet having at least one hole formed thereon which is mounted on a plastic film in such a manner that said plastic film is placed as a new outermost layer, and removing said plastic film after the holes are accurately aligned.
10. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein said method includes a step of laminating a ceramic green sheet having at least one hole formed thereon which is mounted on a plastic film on a ceramic green sheet to become said thin plate in such a manner that said plastic film constitutes an outer layer thereof, removing said plastic film after the holes are accurately aligned.
11. A method of fabricating a piezoelectric/electrostrictive device according to claim 9, wherein said plastic film is a poly(ethyleneterephthalate) film.
12. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein a ceramic laminate with a piezoelectric/electrostrictive element formed on the outer surface of said thin plate portion thereof is further cut into a desired unit individually, then thus cut units are heat treated at 300°C to 800°C.

13. A method of fabricating a piezoelectric/electrostrictive device according to claim 1, wherein, when cutting a ceramic laminate with said piezoelectric/electrostrictive element formed thereon, said piezoelectric/electrostrictive element and said laminate are simultaneously cut, and the widths of said piezoelectric/electrostrictive element and a thin plate portion of said laminate are made the same.

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